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(56) Documents Cited
GB 2252302 A **EP 0215756 A2**
US 6015058 A

(58) Field of Search
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PK13 PK5 PL5 PL6, B8T TWX, F3C CSA CSG
INT CL⁷ **B65D 43/00, F42B 39/00**
ONLINE:WPI,EPODOC,JAPIO

(54) Abstract Title
Paintball container

(57) A paintball container comprises a body 12 and a lid 14. The lid 14 is hinged to the body 12 at one side, and has a tab 42 at the other side to facilitate opening of the container. The body 12 has a guard 26 formed on it adjacent to the tab 42 on the lid. The guard is substantially U-shaped and bounds a recess 30 into which a user can insert their thumb to pull up the tab 42 to release the lid. The guard 26 prevents accidental opening of the lid, for example when the container is being removed from a harness in which it is being carried.

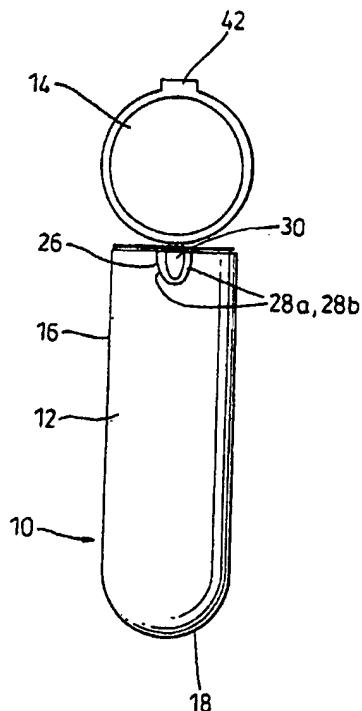


Fig. 3

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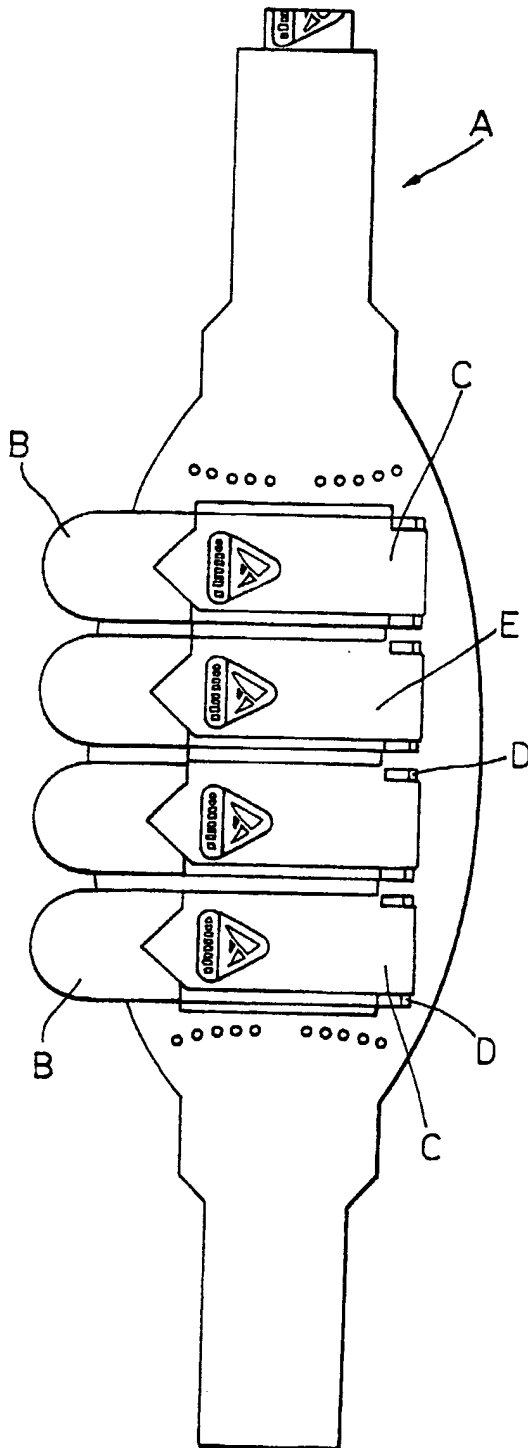


Fig. 1a

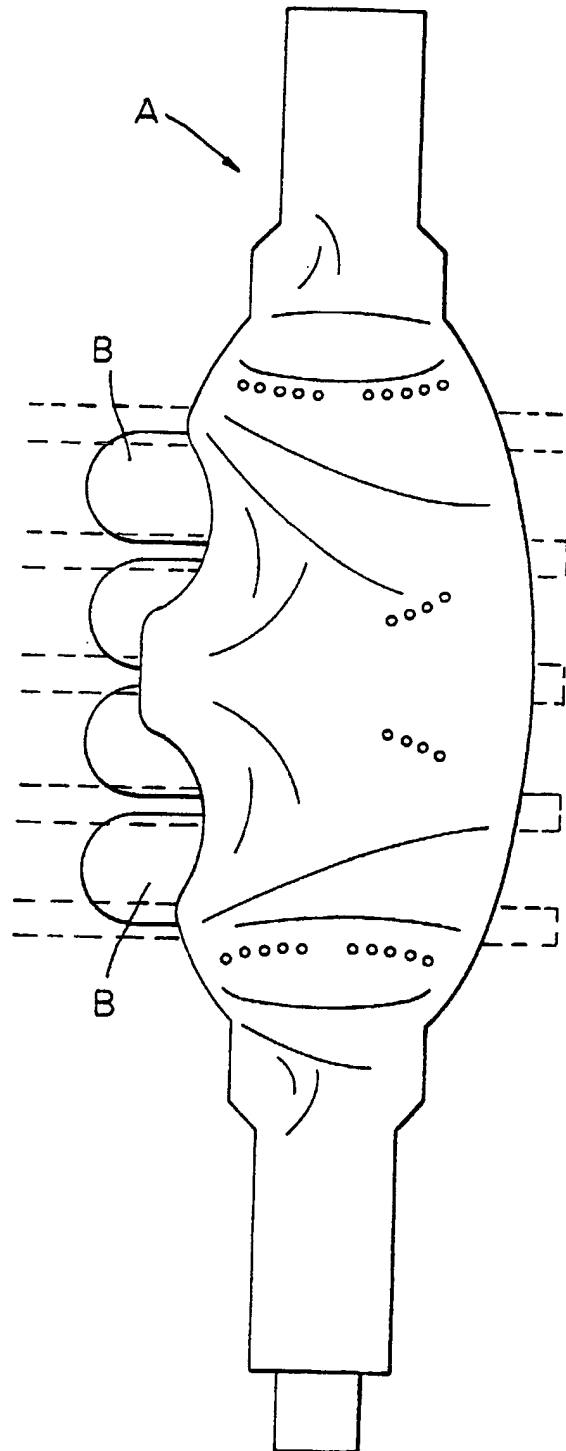


Fig. 1b

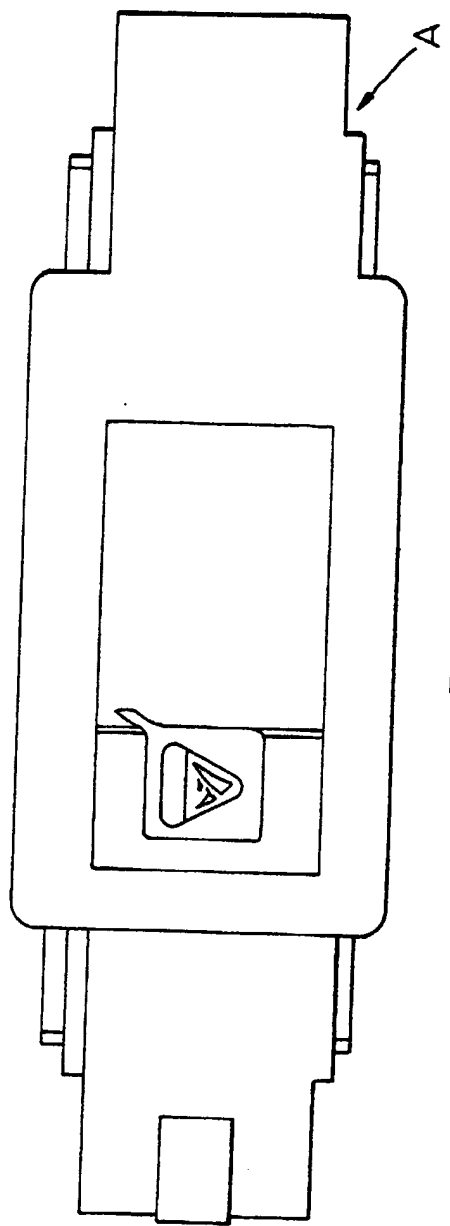


Fig. 2a

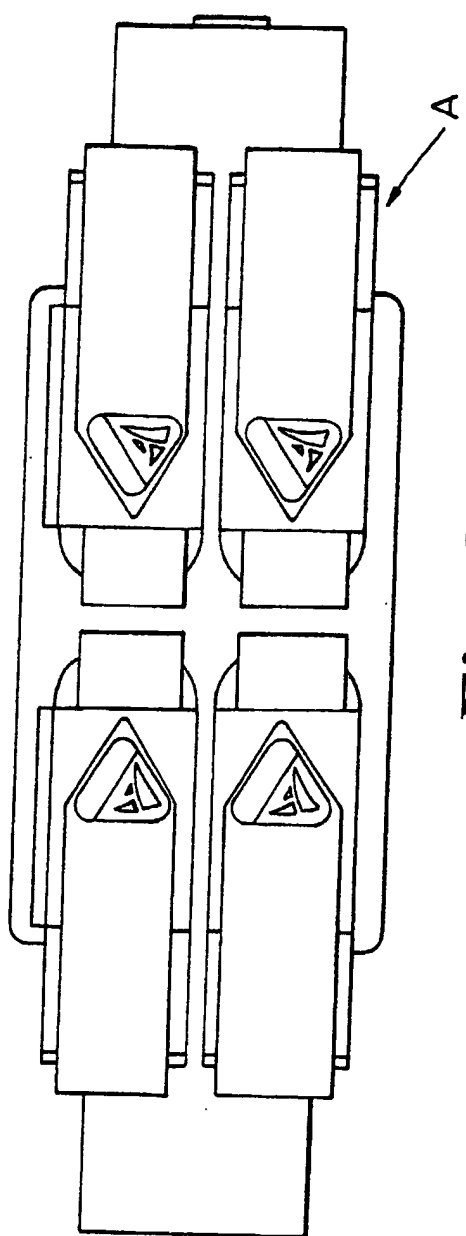


Fig. 2b

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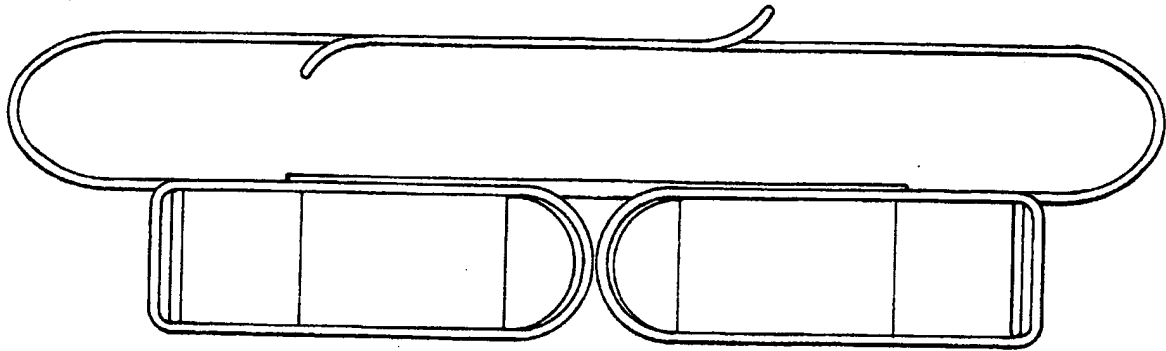


Fig. 2c

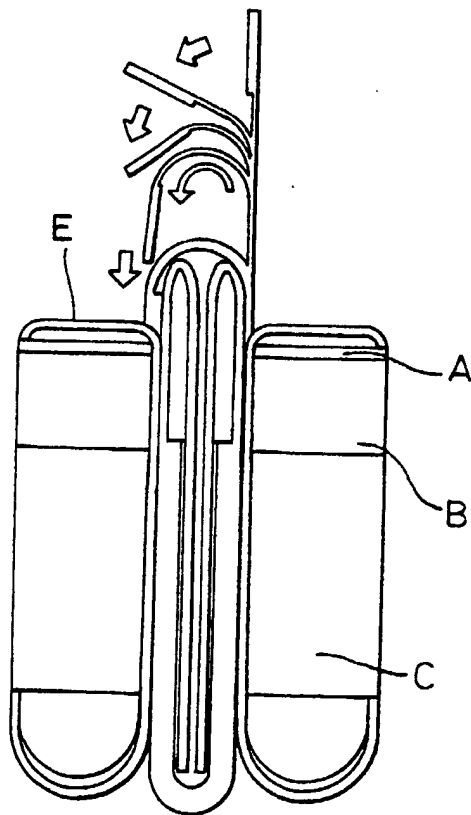


Fig. 2d

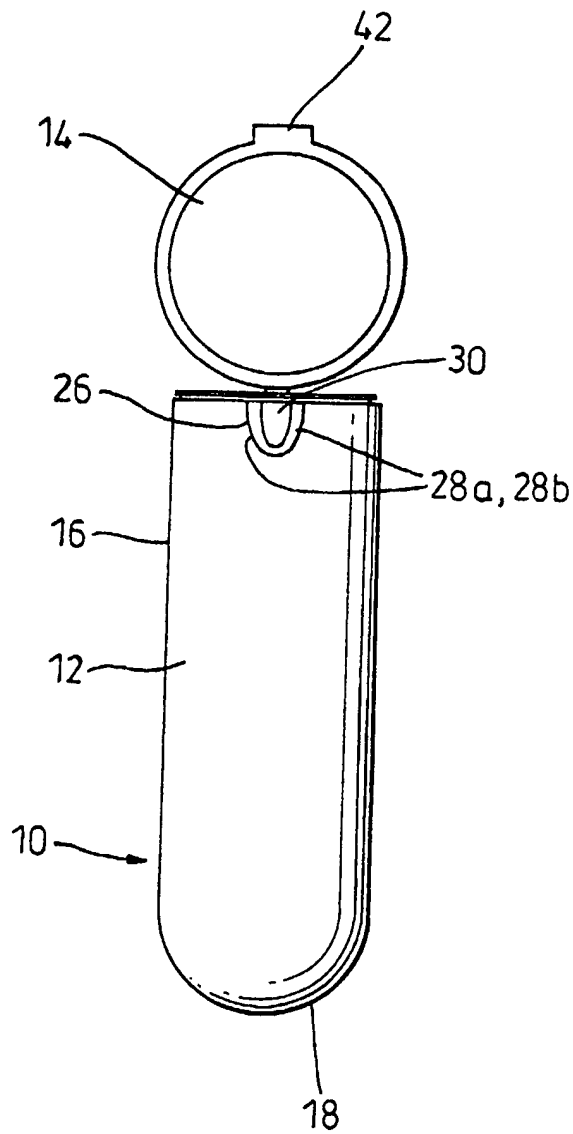


Fig. 3

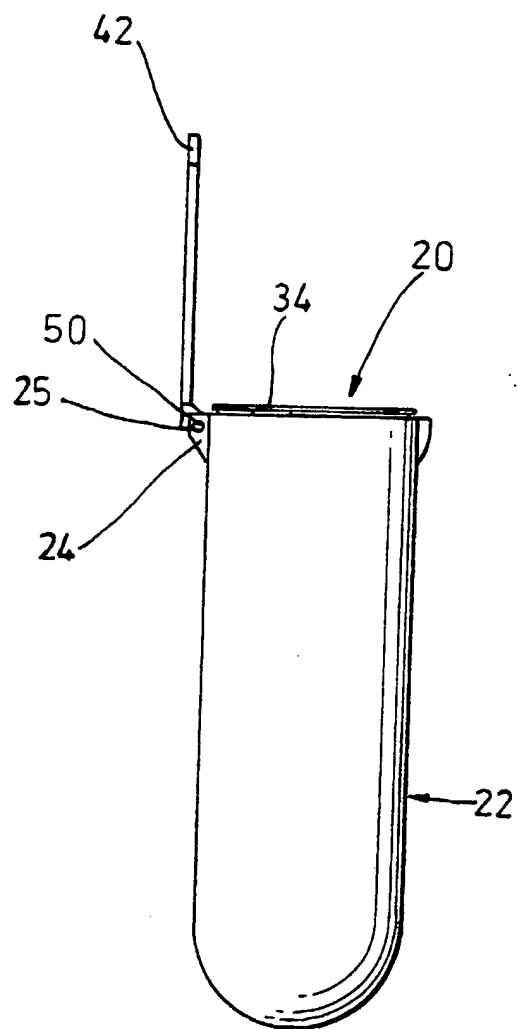


Fig. 4

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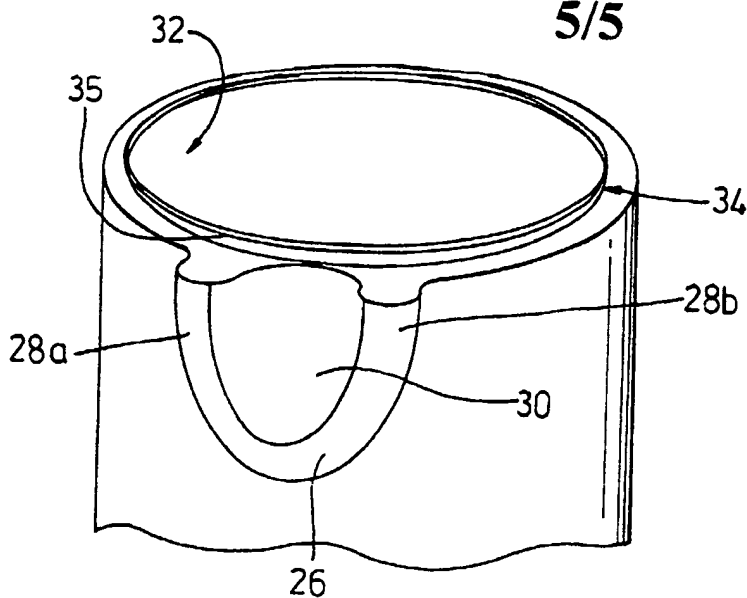


Fig. 5

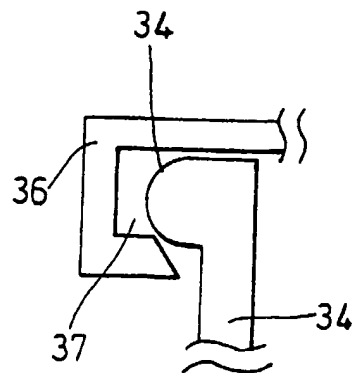


Fig. 6

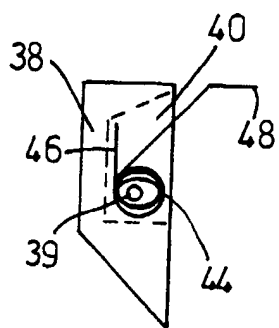


Fig. 7

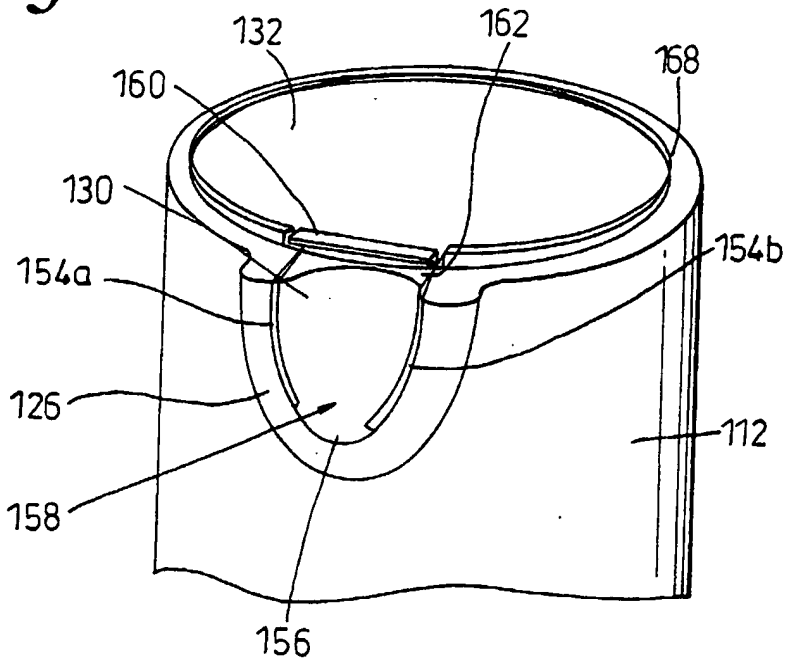


Fig. 8

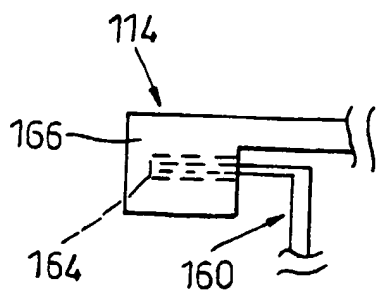


Fig. 9

PAINTBALL CONTAINER

This invention relates to a paintball container.

- 5 Current containers for paintballs typically store up to 150 paintballs and have a lid that snap fits upon a rim at an open end of the container body. The lid has a tab projecting from its edge to aid a player in opening the container, typically by engaging the tab with their thumb and pushing the lid away from the body.
- 10 Modern paintball harnesses (A) are arranged to hold a number of such paintball containers (B) around a player's waist. The containers (B) are typically held in the harness by elastic hoops (C) with the containers' lids (D) pointing towards the ground, see for example Figure 1a and 1b.
- 15 This allows the player to grab a container (A) of paintballs and open it quickly, usually in a single movement. The harness sometimes includes an overstrap (E) that covers the lid (D), when the container (B) is held in the harness (A), and is fastened with Velcro.
- 20 Upon removal of the container from the harness the player's hand tends to drive the container further into the harness prior to removing it therefrom, even when the harness does not hold the containers with their lids facing the ground, see for example Figures 2a to 2d. The tab on the lid can catch on the harness and separating the lid from the body such that
- 25 the container is, at least partially, open. This premature opening of the container often results in the paintballs stored in the container being dropped onto the ground, which is clearly undesirable.
- 30 A further problem associated with current paintball containers is that in order to open them it is necessary to support the container, typically upon the player's body and the force necessary to open the container tends to

push the container out of the player's grip due to the bulky nature of the container, typically 60mm diameter. This problem is exacerbated by the use of protective gloves by players.

- 5 It is an aim of the present invention to provide a paintball container that, at least partially, ameliorates at least one of the aforementioned problems.

According to a first aspect of the present invention there is provided a paintball container comprising a body and a lid, the container including a
10 release member to enable opening of the container and the body having a guard protruding from an outer surface thereof, arranged so that with the body engaging the lid in a closed configuration the release member is adjacent at least part of the guard, so that the guard is arranged to direct a foreign body travelling longitudinally over the body towards the lid past
15 the release member to prevent unintentional opening of the container.

This arrangement has the advantage over prior art arrangements that the guard guides potential snags away from the release member without them engaging the release member and thereby opening the container and
20 allowing any paintballs stored therein to be expelled over the ground.

The guard may, at least partially, bound a recess that is arranged to accommodate a user's digit.

- 25 The release member may be formed on the body. The release member may be arranged to actuate a release catch for the lid. The release member may be formed integrally with the body.

The release member may be provided in the form of a slot through the
30 body, within the recess, such that the recess is arranged to form a push catch. The push catch may have a lip at a free end thereof, the lip being

arranged to releasably engage in a slot the lid when the container is in the closed configuration. The push catch may be resiliently deformable and is arranged to disengage the lip from the slot upon being deformed.

- 5 This arrangement has the additional benefit that it removes the necessity to push a tag upward thereby eliminating the tendency of the container to move away from the user as they open the container, typically with gloved hands.
- 10 The release member may be a tab on the lid that is arranged to be engaged by the user's digit so as to urge the lid away from the body, to open the container.

- The lid may be attached to the body by a spring-loaded hinge that is
- 15 arranged to urge the lid away from the body, in an open configuration.

- According to a second aspect of the present invention there is provided a method of storing at least one paintball including placing the at least one paintball in a container in accordance with the first aspect of the present
- 20 invention.

The invention will now be described, by way of example only, with reference to the accompanying drawings in which:

- 25 **Figures 1a and 1b** are views of one embodiment of a conventional paintball container harness;

Figures 2a to 2d are views of a second embodiment of a conventional paintball harness;

Figure 3 is a front elevational view of a first embodiment of a paintball container according to an aspect of the present invention;

5 Figure 4 is a side elevational view of the paintball container of Figure 3;

Figure 5 is a partial perspective view of a free end of a body of the paintball container of Figure 3;

10 Figure 6 is a partial cross-section through a snap fit arrangement between a body and a lid of the paintball container of Figure 3;

15 Figure 7 is a sectional view of a hinge knuckle, incorporating a spring loading mechanism, of a lid of the paintball container of Figure 3;

Figure 8 is a partial perspective view of a body of a second embodiment of a paintball container according to an aspect of the present invention; and

20 Figure 9 is a partial cross-section through a catch arrangement between a body and a lid of the second embodiment of a paintball container according to an aspect of the present invention.

25 Referring now to Figures 3 to 7, a paintball container 10 comprises a body 12 and a lid 14. The body 12 has a plain hollow, circular cylinder 16 that terminates at one end in an outwardly convex, hollow hemispherical dome 18 and is open at another end 20. The body 12 typically has a length to diameter ratio of approximately 4:1 and can
30 typically accommodate between 100 and 140 paintballs.

An outer surface 22 of the cylinder 16 has a pair of spaced apart hinge knuckles 24 (only one shown) projecting therefrom adjacent the open end 20. Each of the knuckles 24 has a circular aperture 25 (only one shown) therethrough along a common axis substantially tangential to the outer-surface 22. The outer surface 22 has a substantially U-shaped smooth, curved protrusion 26 thereupon, diametrically opposite the knuckles 24. The outer side of the protrusion 26 is at a shallow angle to the surface 22. Two arms 28a, b of the protrusion 26 terminate at the open end 20. The protrusion 26 tapers inwardly as it extends away from the free end 20.

A curved, inwardly concave recess 30 lies between the arms 28a, b of the protrusion 26. The recess 30 is typically sized to accommodate the tip of a user's thumb.

The open end 20 of the cylinder 16 has an annular rim 34 projecting longitudinally therefrom. The rim 34 lies flush with an inner surface 32 of the body 12 and is narrower than the body 12. The rim 34 has an outwardly projecting radial lip 35 thereabout, remote from the cylinder 16.

The lid 14 is substantially circular and has a peripheral lip 36 projecting therefrom. The lip 36 has a groove 37 therein and has an inner diameter that is very similar to the external diameter of the rim 34 on the body 12. A tab 42 projects radially from the lid 14. The tab 42 projects from the lid 14 by substantially the same amount as the arms 28a,b from the open end 20. The tab 42 also subtends a substantially the same amount of arc as the arms 28a,b.

A hinge knuckle 38 projects from an edge of the lid 14 diametrically opposite the tab 42. The knuckle 38 has a circular aperture 39

therethrough that opens into an open chamber 40 approximately half way through the knuckle 38 that is sized to fit snugly between the knuckles 24. A coil spring 44 is located in the chamber 40, coaxially with the aperture 39. A first free end 46 of the spring 44 rests on an inner wall of the chamber 40 and a second free end 48 lies externally of the knuckle 38.

The lid knuckle 38 lies between the body knuckles 24 and a pin 50 passes through the respective apertures 25, 39, the chamber 40 and the spring 44. The second free end 38 of the spring 44 abuts the knuckle 24 adjacent the open end 20 of the body 12. Thus the lid 14 is hingedly attached to the body 12. The action of the spring results in the lid 14 being urged away from the body 12 when the container 10 is in an open configuration.

With the container 10 in a closed configuration the lip 35 engages in the groove 37, typically this is a snap fit. In the closed configuration the protrusion 26 and tab 42 are adjacent each other and present a substantially continuous smooth surface 52 surrounding the recess 30. The protrusion 26 extends radially outwards from the body 12 further than the tab 42 and is wider than the tab 42 in the circumferential direction round the container, and serves to guard the tab 42 in order to prevent snagging of the tab 42 that can result in the accidental opening of the container 10. The protrusion 26 guides any undesired projecting point, or surface, travelling longitudinally over the body towards the lid, that may potentially snag the tab 42 over the tab 42 without engaging therewith as it typically projects from the body 12 as far or further than the tab 42 projects from the lid 14.

With the container 10 in a closed configuration a user opens the container 10 by placing their digit, typically their thumb, in the

recess 30, engages the tab 42 therewith. The use then pushes against the tab 42 to overcome the frictional force between the lip 36 and the rim 34 and urge the lid 14 away from the body 12 in a conventional manner.

- 5 A second embodiment of a paintball container according to the present invention is shown in Figures 8 and 9, is substantially similar to the first embodiment and similar parts will be accorded similar reference numerals in the one hundred series. The body 112 has slots 154a,b therethrough at the conjunction of the projection 126 and the recess 130. The slots 154
10 a,b extend from the open end 120 but do not extend all the way around the recess 130 such that a hinge portion 156 of the body 112 remains within the recess 130 remote from the open end 120. Thus, due to the resilient nature of the material from which the container 110 is fabricated, typically high density polyethylene (HDPE) or polypropylene, the portion
15 of the body 12 between the slots 154a,b 130 defines an integrally formed inwardly depressible, resilient catch 158.

The catch 158 has a substantially L-shaped lip 160 projecting from a free end 162 thereof adjacent the inner surface 132 of the cylinder 116.

20

- The lid 114 has a slot 164 in an inner surface of a peripheral lip 166 that is arranged to engage the lip 160 when the container 110 is in a closed configuration. The engagement of the lip 160 of the catch 158 in the slot 164 holds the lid shut. In this embodiment the lip 166 and rim 168
25 are plain and do not snap fit together, however in an alternative embodiment they may snap fit together.

- A user opens the container 110 by placing their digit, typically their thumb, in the recess and urging the catch 158 inwards to disengage the
30 lip 160 from the slot 164. The lid 114 is then urged away from the body 112 in the conventional manner.

In this embodiment the protrusion 126 serves to guard not only the tab 142 but also the catch 158 from accidental actuation thereby preventing the premature opening of the container 110 with the attendant risk of dropping the paintballs.

It will be appreciated that the lid 114 of the second embodiment may or may not have a tab corresponding to the tab 42 of the first embodiment. In the case where the lid 114 does not have a tab the lid 114 will typically be urged away from the body 112 by the action of a spring as described hereinbefore in relation to the first embodiment of the container, or by the user lifting the lid 114 away. Where the tab 114 does have a tab the lid 114 is typically urged away from the body 112 by the spring action or by the user engaging the tab with their digit.

In both of the embodiments the body 12, 112 and the lid 14, 114 are typically fabricated by injection, or blow, moulding from HDPE or polypropylene. The body 12, 112 and lid 14, 114 are placed in a closed configuration and allowed to cool together. This results in better matching of the lip and rim, thus achieving an effective snap fit arrangement without excessive frictional engagement therebetween. Excessive frictional engagement between the lip and the rim results in difficulties for a user when opening the container.

It will be appreciated that, although described as having a spring loaded hinge arrangement the hinge arrangement need not be spring loaded. Indeed the container need not have a hinge arrangement, it may have a push off lid.

It will also be appreciated that although described as being of circular cross-section the container may be of any convenient cross-section.

From the foregoing it will be observed that numerous modifications and variations can be effected without departing from the true spirit and scope of the present invention. It is to be understood that no limitations with
5 . respect to the specific embodiments is intended or should be inferred. The disclosure is intended to cover, by the appended claims, all such modifications as fall within the scope of the claims.

CLAIMS

1. A paintball container comprising a body and a lid, the container including a release member to enable opening of the container and the
5 body having a guard protruding from an outer surface thereof, arranged so that with the body engaging the lid in a closed configuration the release member is adjacent at least part of the guard, so that the guard is arranged to direct a foreign body travelling longitudinally over the body towards the lid past the release member to prevent unintentional opening
10 of the container.
2. A container according to claim 1 wherein the guard, at least partially, bounds a recess that is arranged to accommodate a user's digit.
- 15 3. A container according to either of claims 1 or 2 wherein a lip on the lid is arranged to frictionally engage a rim on the body in the closed configuration.
4. A container according to claim 3 wherein the lip and rim are
20 arranged to snap fittingly engage.
5. A container according to any preceding claim wherein the release member is formed on the body.
- 25 6. A container according to any preceding claim wherein the release member is arranged to actuate a release catch for the lid.
7. A container according to claim 6 wherein the release member is formed integrally with the body.

8. A container according to any one of claims 2 to 7 wherein the release member is formed by means of at least one slot through the body, within the recess, such that a part of the body within the recess is arranged to form a push catch.
- 5
9. A container according to claim 8 wherein the push catch has a lip at a free end thereof, the lip being arranged to releasably engage in a slot the lid when the container is in the closed configuration.
- 10
10. A container according to claim 9 wherein the push catch is resiliently deformable and is arranged to disengage the lip from the slot upon being deformed.
- 15
11. A container according to any one of claims 1 to 4 wherein the release member is a tab on the lid that is arranged to be engaged by the user's digit so as to urge the lid away from the body, to open the container.
- 20
12. A container according to any preceding claim wherein the lid is attached to the body by a spring loaded hinge that is arranged to urge the lid away from the body, in an open configuration.
- 25
13. A container according to any preceding claim wherein the guard extends, and tapers inwardly, away from the lid in the closed configuration.
14. A method of storing at least one paintball including placing the at least one paintball in a container according to any one of claims 1 to 10.
- 30
15. A paintball container substantially as hereinbefore described with reference to the accompanying drawings.

16. A method of storing at least one paintball substantially as hereinbefore described with reference to the accompanying drawings.



INVESTOR IN PEOPLE

Application No: GB 0130999.6
Claims searched: 1 to 16

Examiner: Mike Henderson
Date of search: 23 April 2002

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:
UK Cl (Ed.T): B8D (DCW3 DCW23 DCD DCE) B8P (PL5 PL6 PK5 PK13) B8T (TWX) F3C (CSA CSG)
Int Cl (Ed.7): B65D 43/00 F42B 39/00 39/26
Other: ONLINE : WPI,EPODOC,JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
A	GB 2252302A (ILINE) (Whole disclosure relevant)	1 to 4, 11 & 14
X	EP 0215756A2 (A/S TEMPONIK) (Whole disclosure relevant)	
A	US 6015058 (PARKS) (Whole disclosure relevant)	

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.